

REMARKS

In the Office Action dated January 18, 2006, a typographical in claim 1 was noted, which has been corrected.

Claims 1-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over an article entitled "A High Performance Computing Approach to the Registration of Medical Imaging Data" by Warfield et al in view of an article entitled "Load Distributing for Locally Distributed Systems" by Shivaratri et al.

This rejection is respectfully traversed for the following reasons.

First, Applicant submits that the Examiner has failed to establish that the Warfield et al article is available as prior art against the present application, i.e., the Examiner has failed to establish that the Warfield et al article was published or otherwise publically known or available prior to Applicant's United States filing date of November 26, 2001. The only date that is discernible on the copy of the Warfield article provided with the Office Action is January 9, 2006, but this appears to be the date that the article was printed out from a website. The article itself does not contain any date, or indication that it has actually been published, and the Examiner has not provided any information as to when this article first became publically available through the internet. The Examiner attached a list of publications of the first-named author, Simon K. Warfield, but the Warfield et al article relied upon by the Examiner is not listed among those publications. Since this publication list apparently is intended to be a complete list of all publications of which Simon K. Warfield is one of the authors, the absence from this list of the Warfield et al article relied upon by the Examiner is *prima facie* evidence that this article has not been published, at least as of the end of 2004.

Since the information provided by the Examiner with the Office Action represents *prima facie* evidence that the Warfield et al article is *not* available as prior art against the subject matter of the present application, it is not incumbent on the Applicant to conduct further investigation to determine whether the Warfield et al article was, in fact, ever published, and, if so, to identify the publication date. In view of the aforementioned *prima facie* evidence that the Warfield et al article is not available as prior art, Applicant submits the Examiner must either provide further evidence on this point, or withdraw the rejection.

Moreover, even if the Examiner determines to continue to rely on the Warfield et al reference, Applicant submits that this reference is no different from other references previously relied upon by the Examiner, in that it does not involve workload distribution of complete processing tasks among a number of different workstations, as is the subject matter of the method and apparatus disclosed and claimed in the present application. As explained in Applicant's previous response, the method and apparatus disclosed and claimed in the present application are for the purpose of processing or post-processing medical images at respective computer workstations. These workstations can be either the workstations that are directed located at the respective imaging modalities, or a further workstation not directly associated with any of the imaging modalities. As is well known to those of ordinary skill in the field of medical imaging, processing or post-processing of a medical image is for the purpose of enhancing or editing the image in order to make the items of interest therein visible in the best possible manner. Therefore, such processing or post-processing necessarily involves changing or modifying the

contents of the image. In other words, the image after the processing is different from the image before the processing.

By contrast, the registration that method and apparatus disclosed in the Warfield et al article is solely for the purpose of bringing two images into registration, in order to produce a superimposed image from the two constituent images. This presumes that the two images that will be superimposed have *already been* processed, otherwise there would be little purpose to superimposing them. If the two images to be superimposed did not *already* have the items of interest therein present in the best possible form for visualization, there would be no point to superimposing the images, because any defect in one of the two constituent images would be unavoidably included in the image resulting from the superimposition.

Moreover, the procedure disclosed in the Warfield et al article describes the parallel computing of a single equation, by distributing the resampling and comparison operations to a number of nodes in different clusters. This is not comparable to a work list that includes individual tasks, wherein each of those tasks, by itself, involves processing of an image and is complete in and of itself.

In the parallel computing procedure disclosed in the Warfield et al article, a single task is divided into several operations, which can be performed at different nodes. By contrast, the work list of tasks disclosed and claimed in the present application involves a number of tasks that are each completed by the workstation in question. If that workstation is sufficiently free, that workstation can be assigned to perform one of the tasks on the work list. If the workstation is already fully occupied, the test generator does not supply the task in question to that workstation.

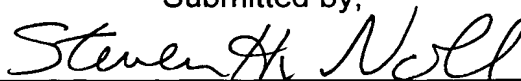
Because there are no complete tasks involved in the procedure disclosed in the Warfield et al reference, there is no task generator, and there is no assignment or non-assignment of a computer workstation to entirely perform one of these complete tasks, as set forth in claims 1 and 6.

Independent claims 1 and 6 have been editorially amended to make clear that the tasks in question are processing tasks that are undertaken entirely at a computer workstation, in contrast to the division of a single task among a number of nodes in the Warfield et al reference. The language added in claims 1 and 6 simply incorporates the attributes of an image processing task that are known to those of ordinary skill in the field of medical image processing, and therefore is fully supported in the specification as originally filed.

The Shivarartri et al reference does not provide any reason, nor could it, for altering these basic attributes of the procedure disclosed in the Warfield et al article. The Shivarartri et al reference discloses a procedure for load distribution for locally distributed systems. The adaptive algorithms that are used for this purpose are described at pages 38 and 39 of the Shivarartri et al article. The data structure is composed of several lists that are maintained at each node. Each node "assumes" that every other node will be a receiver, and this state is represented in the aforementioned lists. There is no discussion in the Shivarartri et al reference whatsoever of undertaking any type of processing tasks at different medical workstations. Therefore, even if the Warfield et al procedure were modified in accordance with the teachings of the Shivarartri et al article, the method and apparatus of the present application still would not result.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,



(Reg. 28,982)

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